About One Case Of Cervicofacial Retracting Burn Scar Managed In The Plastic Surgery Unit Of Dakar (Senegal)

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Abstract

In sub-Saharan Africa, cervicofacial burn sequelae remain the appanage of the young. They are characterized by their high polymorphism, with an important functional and aesthetic impact. Despite the variety of therapeutic methods for cervicofacial retracting scars, the simplest techniques always keep their indication. We are reporting this case of a 2 year-old-child managed in the plastic surgery unit of Dakar (Senegal). He presented with burn sequelae involving the face, neck, chest and the two upper limbs. Z-Plasty and skin grafts provided good functional and aesthetic results. A review of the literature and therapeutic aspects are discussed.

INTRODUCTION

Cervicofacial burn sequelae are common in our context. They are specific clinical entities. Severity is due to the functional impairment they cause. They are also characterized by significant psychosocial impact, especially in younger children. However, even for cervicofacial burn injuries, therapeutic procedures are based on two imperatives, one functional and the other one aesthetic. We report a case of cervicofacial burn scar in a preschool child, managed in the plastic surgery unit of Dakar. Through this observation and a review of the literature, we try to focus on therapeutic aspects related to our context.

OBSERVATION

The child P. C. S., aged 2 years and living in the neighborhood Hersan in Thiès (Senegal), was admitted in March 21, 2007, for burn sequelae involving the face, neck, chest and the 2 upper limbs. According to the history of the disease, the patient would have been burned at his home by hot oil during a playful accident in December 15, 2006. There was no particular medical history. On admission, physical examination showed many burn scars.

Aesthetically, the patient had a large retractile scar involving the right hemiface, the neck and the right thoracic limb. At this level, the burned area presented a hypertrophic and dischromic alteration (see Fig. 1, 2 and 3).

Functionally, there was a significant limitation of all cervical movements: flexion-extension, left and right lateral rotation and left and right lateral flexion. The physical exam also showed a retracting scar of the right ear (flag and lobe), with a slightly permeable external acoustic meatus. A retracting scar involving the lower lip, leading to an inability of complete occlusion of the mouth, was also found. The right lower eyelid presented an ectropion. The right upper limb presented many burn scars with low axillary functional limitation and an elbow extension limited to 65°. The wrist was stuck in flexion (30°) and adduction (10°). The little finger was stuck by a retracting scar in extension-adduction: extension of the metacarpophalangeal joint (90°) and adduction of the proximal interphalangeal joint (80°) that was dislocated (see Fig. 3). The left upper limb showed a retracting scar at the elbow with the extension limited to 120°, a flexing scar of the wrist (35°), and a thumb scar in extension-abduction: abduction and extension to 90°, with a complete dislocation of the metacarpophalangeal joint of the thumb (see Fig. 4).

The patient enjoyed a good general condition, including a satisfactory nutritional status despite the difficulties he had to feed himself since the accident. A standard preoperative assessment was performed. Given the seriousness and complexity of the lesions, surgical treatment was performed in several steps.

Several surgeries were performed between 03.05.2007 and 01.12.2009 to correct the majority of lesions found at PCS's admission.

The correction of the cervicofacial scar was performed in several steps, including:

The release of the cervicothoracic scar.

A split-thickness skin graft in the neck (performed in 2 steps)

A "Z"-plasty in the neck burn sequela (performed in 2 steps).

In every case, excision of the scar tissue was performed. The use of silver nitrate pencil has improved the aesthetic result of thin-thickness skin grafts (see Fig. 7, 8, 9 and 10). The postoperative course was uneventful.

For the ectropion, a release of the right lower eyelid scar was performed, with full-thickness skin graft. The postoperative course was uneventful. Aesthetic and functional results were satisfactory in the long term, despite the persistence of a discrete residual ectropion in the early months following the intervention.

For the lower lip scar, a release of the lower lip retraction was performed, accompanied by a full-thickness skin graft. The postoperative course was uneventful. Functional and aesthetic results were satisfactory in the long term, with complete occlusion of the mouth (see Fig. 5 and 6).

In the right ear, the release of the scar was performed twice because of a recurrence, accompanied by a full-thickness skin graft. The postoperative course was uneventful. Functional and aesthetic results were passable, including the persistence of a discrete scar at the tip of the right ear (see Fig. 7).

In the right thoracic limb, a release of the elbow scar accompanied by a "Z"-plasty was performed. In the 5th finger, a release of the scar, a full-thickness skin graft and a spinning were performed as well. The postoperative course was uneventful, and functional and aesthetic results were satisfactory at the level of the right elbow. Results were passable at the level of the 5th finger. Indeed, a new proximal interphalangeal dislocation occurred after removal of the pin. The right axillary burn sequelae have led to no functional impact in the long term. Amplitudes found for shoulder movements were normal.

In the left thoracic limb, the surgery consisted of 2 "Z"-plasties (left elbow and wrist). The thumb was also released from its scar and pinned. The postoperative course was uneventful. Functional and aesthetic results were satisfactory in the long term, despite a recurrent metacarpophalangeal dislocation after removal of the pin.

Figure1

Right lower eyelid ectropion and retractable scar of the lower lip.

Figure 2

Large retractable cervicofacial burn scar with hypertrophic and dyschromic alterations.

Figure 3

Aspect of upper limbs. Retracting scars of shoulder, elbow and fifth finger on the right upper limb

Figure 4

Aspect of upper limbs. Retracting scar of elbow and thumb on the left upper limb.

Figure 5

Long-term results in a front view of the face. Satisfactory occlusion of the right eye and mouth after correction of the right lower eyelid ectropion and lower lip retractable scar.

Figure 6

Long-term results in a front view of the face. Satisfactory occlusion of the right eye and mouth after correction of the right lower eyelid ectropion and lower lip retractable scar.

Figure 7

Long-term results on views of left and right profile: Release of retracting scar of the helix and lobule of the right ear, and full-thickness skin graft on the face after excision of the scar tissue.

Figure 8

Long-term results on views of left and right profile: Release of retracting scar of the helix and lobule of the right ear, and full-thickness skin graft on the face after excision of the scar tissue.

Figure 9

Long-term results in a front and profile view of the neck: Good cervical extension after several "Z"-plasties and thin-thickness skin grafts.

Figure 10

Long-term results in a front and profile view of the neck: Good cervical extension after several "Z"-plasties and thin-thickness skin grafts.

DISCUSSION

Retractile scars due to thermal burns in children are relatively common in our environment1. Despite progress made in recent years in the management of such patients, the disease remains problematic. This observation raises the question of the treatment of burn injuries in our sub-Saharan context.

Many etiological factors are usually found in our environment2. Particularly, the age of our patient (2 years) represents a frequency peak of playful accidents, with predominance for the boy. For the child, this age represents the time for discovering his space, after the acquisition of walking few months earlier2. Burns due to fire represent the most frequent etiology1,2; however, this was not the case in our patient. In the case of PCS, burning was indeed produced by direct and accidental exposure to boiling oil. This is one of two most frequently observed mechanisms during hot liquids burns2. The burn injury of PCS occurred in the family home, which is an aggravating factor that directly involves the responsibility of parents. At the acute stage of PCS's burn, the poor quality of care also explains the clinical features he presented upon admission.

Clinical examination of PCS shows a polymorphism of burn injuries. Functional and aesthetic impacts are very important. Topography (thoracic limbs, neck and face) and severity of lesions are probably related to the mechanism of the playful accident causing the initial burn. This accidental exposure mechanism explains why in children, scars due to thermal burns are predominant on the upper extremities and trunk.

In the case of PCS, the delay between playful accident and first surgery was about 6 months. Sankalé et al.2 have found an average of three years in a series of 42 cases. This difference can be considered insignificant because the delay of the surgery has no impact on the functional outcome in children of preschool age. Most often, it is better to wait for a scar stabilization before operating3,4. However, in case of rapid worsening of the functional deficit, it is recommended to anticipate the surgical management3,4, and this was the case for PCS. For burns with high functional impairment, especially in children during growth, a retracting scar can quickly affect the growth and function of a limb or an organ. Especially in the face, impairments occurring in organs such as eyelids or lips may require earlier "rescue" surgery3,4. Thus, the eyelid ectropion presented by PCS exposed his right eye to early complications, and had to be urgently treated.

Cervicofacial burn sequelae remain the appanage of the young5,6. In the case of PCS, like in many cervicofacial burn injuries, the major requirement is functional because of the mobility and the role of the neck and many facial organs. Good position of the angle between the neck and the chin is the result to be obtained, especially in cases of high retraction6. In the case of PCS, the demand for surgery was very strong. Our indications were discussed according to the muscle basement, the existence of a retractile scar, the degree of mutilation and the healthy skin quality.

Tissue expansion has an important role in the repair of cervical burn sequelae. But despite its excellent results, this technique is very expensive and not indicated in our context. Achieving locoregional or distant flaps was not done for similar reasons and technical difficulties. The use of fasciocutaneous or myocutaneous flaps is controversial in the treatment of burn sequelae. This is due to frequent burn consequences in areas adjacent to the region to treat, with destruction of dermic and hypodermic networks. However, the myocutaneous latissimus dorsi flap can be an interesting solution in large cervical burn sequelae7.

In most cases we used the technique of the "Z"-plasty for the release of retracting scars. This technique has been used with good results for large scars located at the neck and the 2 thoracic limbs. "Z"-plasty has been preferred for the management of this case, because this technique is simple and provides very good results. When iterative releases of scars were needed in PCS, they were done with a minimum of three months between each intervention. The advantage of this plasty is to remove the retraction by inserting fragments of healthy skin in the scar. It allows both to increase the length of the scar, and its best aesthetic integration within the concerned region3. This technique requires no special equipment. It is performed with simple gestures, requiring a short hospital stay. It remains, in our view, the most appropriate technique for retractile burn injuries in our context.

The dermo-epidermal graft has also been widely used for PCS. With the exception of the left upper limb, all releases of retracting scars have been associated with a thin-thickness or full-thickness skin graft. Given the exposed surfaces after excision of fibrosis, skin grafts have been previously expanded.

It is clear that, despite the diversity of therapeutic processes, the simplest techniques still have many indications ("Z"-plasty, skin graft) and provide good functional and aesthetic results. However, this observation highlights recurrent difficulties inherent in our context1,2,8,9. In particular, the quality of the burn management between the place of the accident and the hospital can be improved through better awareness. Efficient management of the burn in the acute stage prevents the onset of many sequelae. The erection of a specialized burn center (or unit) allows centralizing the treatment of burns and their sequelae. It also allows the formation of a multidisciplinary management team (surgeon, physiotherapist, intensivist, psychologist...).

CONCLUSION

Many problems are encountered in our context for the management of cervicofacial burn scars. These include equipment and the cost associated with certain surgical procedures. However, it is still possible to obtain a functional and aesthetic satisfaction through simple processes like "Z"-plasty and skin grafts.

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